

REMARKS

Claims 1-14 and 29-32 are pending in the present application. Claims 1-14 and 30-31 are rejected. Claims 1, 3, 13 and 14 are herein amended. Claims 29 and 32 are canceled.

Claim Rejections under 35 U.S.C. §103

Claims 1-5, 7, 9, 11 and 30-31 are rejected under 35 U.S.C. §103(a) as being unpatentable over Summerfelt et al. (U.S. Patent No. 5,619,393) in view of Shimada et al. (U.S. Patent No. 6,294,860). Claims 1-12 are rejected under 35 U.S.C. §103(a) as being unpatentable over Summerfelt et al. in view of Hiyama et al. (JP 2000-286396A). Claims 13-14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Summerfelt et al. in view of Hiyama et al. and Kanaya et al. (U.S. Patent No. 2002-0063274A).

Applicants herein amend claims 1, 3, 13 and 14 to clarify the invention. According to the amendments, allowed claims 29 and 32 are combined with claims 1 and 13 respectively. Amended claims 3 and 14 relate to the device structures shown in Figs. 10B and 15. That is, the lower electrode 42 is formed on the barrier metal layer 36 and has a width larger than that of the barrier metal layer 36.

Thereafter, Applicants submit that the rejections are no longer valid, because not all of the claimed limitations are taught or suggested by the cited references.

With respect to claim 1, 2, 5, 6, 9, 10, 13, 30 and 31, Applicants note that as described above, allowed claims 29 and 32 are combined with claims 1 and 13, respectively. Claims 29 and 32 had previously been indicated as having patentable subject matter. Therefore, Applicants submit that claims 1 and 13, and claims dependent therefore, patentably define subject matter.

Applicants respectfully request that the claim rejections regarding claims 1, 2, 5, 6, 9, 10, 13, 30 and 31 would be withdrawn.

With respect to claims 3, 4, 7, 8, 11, 12 and 14,

Claims 3, 4, 7, 8, 11, 12 and 14 have common features that the barrier metal layer is formed beneath the lower electrode, and the lower electrode has a width larger than that of the barrier metal layer. According to these features of these claims, the contact area between the lower electrode and the base structure can be much decreased, so that the stress applied to the capacitor dielectric film caused by a thermal expansion coefficient difference between the substrate and the capacitor dielectric film can be much suppressed (see page 37, line 16 to page 38, line 17 of the specification of the present application).

On the other hand, Summerfelt et al., Shimada et al., Hiyama et al., and Kanaya et al., neither teach nor suggest the barrier metal layer having a width smaller than that of the lower electrode. These references do not provide any motivation for one skilled in the art to have combined the references to reach the present invention.

Therefore, Applicants submit that the present invention would not have been obvious to one of ordinary skill in the art, even if Summerfelt et al., Shimada et al., Hiyama et al., and Kanaya et al. were properly combined.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

Response under 37 C.F.R. §1.116
Attorney Docket No. 011254
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If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP



Kenneth H. Salen
Attorney for Applicants
Registration No. 43,077

KHS/led
1250 Connecticut Avenue, NW
Suite 700
Washington, D.C. 20036
(202) 822-1100

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